* Key with NO work *

Algebra Review – prep for Honors Algebra II

SOLVING EQUATIONS

SOLVE each of the following equations. Show all work.

1. $-\frac{3d}{4} + 5 = 7$ 1. $d = -8/3$

2. $\frac{1}{2}(4x + 12) = 6(x - 1)$ 2. $x = 3$

3. $\frac{5n+1}{8} = \frac{3n-5}{4}$ 3. $n = 11$

Solve for x.

4. $\frac{x-3}{6} + 3 = a$ 4. $x = 6a - 15$

FUNCTIONS, EQUATIONS & GRAPHS

State the DOMAIN and RANGE of each relation. Then determine if it is a function.

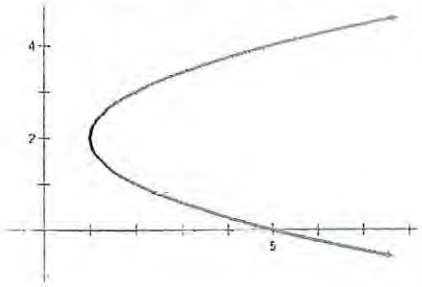
5. $\{(-30, 40), (0, 40), (30, 20), (20, 0)\}$

Domain: $\{-30, 0, 20, 30\}$

Range: $\{0, 20, 40\}$

Function? yes

6. Does the graph below represent a FUNCTION? Explain.



Domain: $x \geq 1$

Range: $\mathbb{R}$

Function? No

Given the FUNCTIONS $f(x) = 2x - 3$ and $g(x) = 2 - x + 2x^2$, evaluate the following:

7. $f(-5)$

7. -13

8. $g(\frac{1}{2})$

8. 2

9. If $f(x) = -3x + 7$ and $g(x) = -7x + 3$, what is the value of $f(-3) - g(3)$?

9. 34

10. Find the EQUATION OF THE LINE containing the points $(7, -1)$ and $(-2, 4)$.

10: $y = -5/9\,x + 26/9$

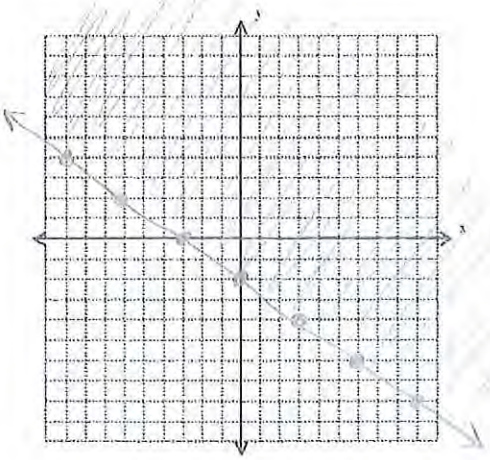
11. Find the X and Y INTERCEPTS of $6x + 2y = 12$.

11. (0, 6) (2, 0)
y-int x-int

12. Write the equation of the line in STANDARD FORM: $y = -\frac{3}{5}x + 3$

12. $3x + 5y = 15$

13. Graph the INEQUALITY: $2x + 3y \geq -6$



LINEAR SYSTEMS:

Solve each System of Equations using SUBSTITUTION or ELIMINATION.

14. $\begin{cases} 4p + 2q = 8 \\ q = 2p + 1 \end{cases}$

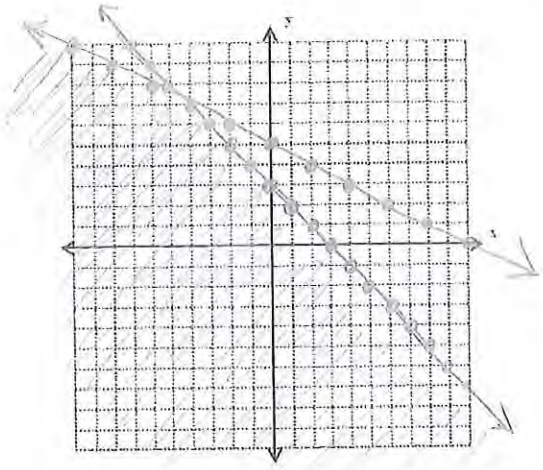
14. p q
(3/4, 5/2)

15. $\begin{cases} 2a + 3b = 12 \\ 5a - b = 13 \end{cases}$

15. a b
(3, 2)

Graph the solution of the SYSTEM OF INEQUALITIES.

16. $\begin{cases} x + 2y \leq 10 \\ x + y \leq 3 \end{cases}$



EXPONENTS & EXPONENTIAL FUNCTIONS:

Simplify each expression. Use only POSITIVE EXPONENTS.

17. $(2x^3y^7)^{-2}$

18. $\frac{12x^5y^3}{4x^{-1}}$

17. $\frac{1}{4x^6y^{14}}$

18. $3x^6y^3$

19. $\left(\frac{r^{-7}b^{-8}}{t^{-4}w}\right)^0$

19. 1

Simplify each RADICAL EXPRESSION. Answers should be in simplest radical form.

20. $\sqrt{18}$

21. $\sqrt[3]{216}$

22. $\sqrt{\frac{3}{15}}$

20. $3\sqrt{2}$

21. 6

22. $\sqrt{5}/5$

23. $4\sqrt{b^5}$

24. Express in Radical Form: $m^{\frac{1}{3}}$

23. $4b^2\sqrt{b}$

24. $\sqrt[3]{m}$

POLYNOMIALS & FACTORING:

Simplify.

25. $(5x^2 - 3x + 7x) + (9x^2 + 2x^2 + 7x)$ 25. $16x^2 + 11x$

26. $(3x - 5)(2x + 7)$ 27. $(8r - 5s)^2$ 26. $6x^2 + 11x - 35$

27. $64r^2 - 80rs + 25s^2$

FACTOR each polynomial completely.

28. $x^2 - 10x + 24$ 29. $14y^2 + 7y - 21$ 28. $(x-6)(x-4)$

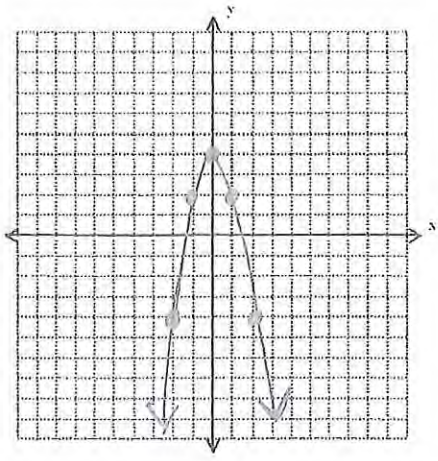
29. $7(2y+3)(y-1)$

30. $4x^3 + 12x - 28$ 30. $4(x^3 + 3x - 7)$

QUADRATIC FUNCTIONS:

Graph the quadratic function:

31. $y = -2x^2 + 4$

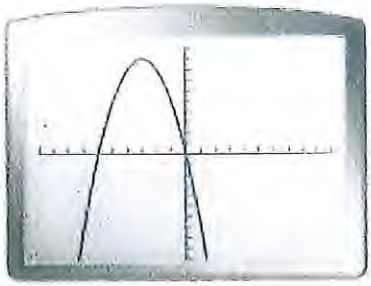


Find the equation for the AXIS OF SYMMETRY and the coordinates of the VERTEX for each graph.

32. $y = 2x^2 + 4x - 1$

AOS: $x = -1$ Vertex: $(-1, -3)$

33.



AOS: $x = -3$

Vertex: $(-3, 4)$

Solve the quadratic equation using SQUARE ROOTS:

34. $5x^2 - 20 = 0$

34. $x = \pm 4$

SOLVE each Quadratic Equation by FACTORING.

35. $x^2 - 16 = 0$

35. $x = \pm 4$

36. $2k^2 + 22k + 60 = 0$

36. $k = -6$
$k = -5$

Solve the quadratic equation using the QUADRATIC FORMULA:

37. $2x^2 - 3x - 5 = 0$

37. $x = 5/2$
$x = -1$

RADICAL EXPRESSIONS & EQUATIONS:

Simplify each expression.

38. $5\sqrt{8} + 2\sqrt{72}$

39. $-\sqrt{12}(4 - 2\sqrt{3})$

38. $22\sqrt{2}$

39. $-8\sqrt{3} + 12$

Solve the RADICAL EQUATION:

40. $\sqrt{2b} + 4 = 8$

40. $b = 8$